Department of Environmental Quality

Air Resources Management Bureau • 49 N. Main St., Suite B • Butte, MT 59701 • (406) 782-2689

MONTANA AIR QUALITY REGISTRATION FORM FOR OIL AND GAS WELL FACILITIES

Montana Department of Environmental Quality
Supervisor Registration Section
Air Quality Registration Section
49 N. Main Street, Suite B
Butte, MT 59701
Phone: (406) 782-2689 FAX (406) 782-2701

For State of Montana Use Only		
Registration Number		
Registration Fee Paid?	☐ Yes	☐ No
Amount Paid		
AFS #		

Submit one (1) signed original paper copy and one (1) electronic copy of the registration form(s) (including calculations) or one (1) signed original paper copy and three (3) paper copies and the associated registration fee to the Air Quality Registration Section at the above address. Please contact the Montana Department of Environmental Quality (Department) if you have any questions or need assistance. A Department response will be provided to the facility within 30 days after receipt and review of the registration information.

☐ New Facility? ☐ Update to Registered Facility?

(Note: For facility deregistration, submit a letter of request to the Department along with all applicable calculations for review to determine the facility's potential to emit.)

COMPANY AND FACILITY NAME AND ADDRESS

Company Name: _____

Facility Name: _____

Mailing Address: _____

_____

Contact Information

Owner's Name _____ Telephone _____

Contact Person _____ Telephone _____

PHYSICAL LOCATION AND FACILITY INFORMATION

Qtr/Qtr Section _____ Section _____ Township _____ Range _____

Latitude _____ Longitude _____ County _____

General Nature of Business _____

Standard Industrial Classification Codes(s) _____

Standard Industrial Classification Description(s) _____

Well Completion Date: _____ Date of Initial Production _____

Gas Production (MMscf/day) _____ Oil Production Rate (bbl/day) _____

Facility Process Description

Narrative Description of the Site and Facility: *(Provide a brief written description of the site and facility.)*

Site Maps: *(Provide as an attachment to this form a topographical and facility site map.)*

Narrative Project Summary: *(Provide a written narrative summarizing the project and equipment or any changes to the facility if previously registered.)*

EMISSIONS UNIT EQUIPMENT INFORMATION

Where applicable, provide the following information for each facility emitting unit (including pollution control equipment) such as heater treatment units, dehydrators, tanks, internal combustion engines, wellhead assemblies, and smokeless combustion devices as well as fugitive equipment leaks. For additional emitting units, control equipment, or additional emissions information, provide as a separate attachment, as needed.

Facility Equipment Emitting Unit(s) Specifications

Emitting Unit 1: _____

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____

Year of Installation _____

Maximum Rated Design Capacity or Throughput _____

Emitting Unit 2:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____

Year of Installation _____

Maximum Rated Design Capacity or Throughput _____

Emitting Unit 3:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____

Year of Installation _____

Maximum Rated Design Capacity or Throughput _____

Emitting Unit 4:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____

Year of Installation _____

Maximum Rated Design Capacity or Throughput _____

Emitting Unit 5:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____

Year of Installation _____

Maximum Rated Design Capacity or Throughput _____

Emitting Unit 6:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____

Year of Installation _____

Maximum Rated Design Capacity or Throughput _____

Emitting Unit 7:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____

Year of Installation _____

Maximum Rated Design Capacity or Throughput _____

Facility Air Pollution Control Unit(s) Identification

Air Pollution Control Unit 1:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____ Estimated Control Efficiency _____

Date of Installation _____ Emitting Unit Controlled _____

Estimated Cost of Pollution Control Equipment _____

Air Pollution Control Unit 2:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____ Estimated Control Efficiency _____

Date of Installation _____ Emitting Unit Controlled _____

Estimated Cost of Pollution Control Equipment _____

Air Pollution Control Unit 3:

Manufacturer's Name _____ Model _____

Unit Type _____ Size _____

Year of Manufacture _____ Estimated Control Efficiency _____

Date of Installation _____ Emitting Unit Controlled _____

Estimated Cost of Pollution Control Equipment _____

FACILITY EMISSIONS SUMMARY

The following tables must be completed for each emission source for total uncontrolled and controlled potential emissions from each source. Calculations must be provided as a separate attachment to this form. Potential emissions are to be calculated based on the production at a maximum capacity for 8760 hours per year (hrs/yr). (Note: To estimate produced gas flare emissions during periods of emergency, assume 500 to 2,000 hrs/yr of operation at maximum production capacity.)

Uncontrolled Potential Emissions (Tons Per Year)

EMISSION SOURCE (e.g., crude tanks, water tanks, heater treater, natural gas-fired heater, produced gas flare, flash separator, pneumatic pump, separator gas vent, truck loading, fugitive equipment leaks etc.)	Uncontrolled Potential Emissions (Tons Per Year)						
	VOC	***HAPs***	***NO_x***	***CO***	***SO_2***	***PM_{10}***	***H_2S***
TOTAL							

Controlled Potential Emissions (Tons Per Year)

For controlled potential emission calculations, include controlled emissions from each controlled source and uncontrolled emissions from each source which does not have control such as process equipment.

EMISSION SOURCE	Controlled Potential Emissions (Tons Per Year)						
	VOC	***HAPs***	***NO_x***	***CO***	***SO_2***	***PM_{10}***	***H_2S***
TOTAL							

Notes: 1.) Calculations for the uncontrolled and controlled potential emissions must be provided as a separate attachment to this form. Please make sure to include all applicable calculations, spreadsheets, emission factors, manufacturers' data, field gas composition data, E&PTANKS program inputs and outputs, and/or any other appropriate model input and outputs.

2.) For air emissions that are determined to be minimal or negligible, please provide a brief written statement or explanation justifying this designation.

CERTIFICATION OF ACCURACY AND COMPLETENESS

I hereby certify that, to the best of my knowledge, information and belief, formed after reasonable inquiry, the information provided in this facility registration form is true, accurate, and complete.

(Name, title, and signature of company representative)

Name _____
(Print or Type)

Title _____ Telephone _____

Signature _____ **Date** _____
(Original Signature Required)

Oil and Gas Well Facilities
Checklist for a Complete Registration

INDUSTRY		MDEQ
☐	**Company Name/Contact Information**	☐
☐	**Well/Facility Name**	☐
☐	**Legal Locations/Facility Information** (e.g., Lat., Long., Sec., Twns., and Range)	☐
☐	**Current Facility Production Rates** (Oil and gas production rates)	☐
☐	**Facility Process Description**	☐
☐	**Facility Plot Plan/Maps**	☐
☐	**List of Equipment Onsite**	☐
☐	**Facility Equipment Emission Calculations** (e.g., heater treaters, oil tanks, water tanks, engines, flares, fugitive leaks etc.)	☐
☐	**All Pertinent Dates** (e.g., well completion and control installation dates etc.)	☐
☐	**Gas Stream Composition Analyses** (including H_2S)	☐
☐	**Crude Oil Composition Analyses** (if necessary) (Note: sample must be taken from the upstream side of the storage tank)	☐
☐	**Emission Models (Inputs/Outputs)**	☐
☐	**Other Calculations**	☐
☐	**Signed Facility Registration Form**	☐

Note: In order for the Air Quality Registration Section to adequately review the application, make sure to include all applicable calculations, spreadsheets, emission factors, manufacturers' data, field gas and/or crude oil composition data, raw laboratory data, E & P TANKS simulation program inputs and outputs, and/or any other appropriate model input and outputs. Contact the Air Quality Registration Section if you have any questions.

Determining Crude Oil Storage Tank Emissions
General Background Information and Recommendations

In order to assist the applicant in estimating emissions from the crude oil storage tanks at the oil and gas production facility, the Department has provided the following.

Tank Emissions

Emission losses from storage tanks that store crude oil (or other process condensate) include flashing losses, working losses, and breathing losses. Flashing losses occur when the vapors are released from the crude oil (or other hydrocarbon liquid) in the storage tanks as it is transferred from a higher pressure vessel (separator) to a lower pressure vessel (storage tank). Working losses are those losses caused as the tank is filled and emptied while breathing losses occur from the daily changes in temperature and barometric pressure. Flashing losses are normally greater than the working and breathing vapor losses.

Emission Models/Calculations

A variety of simulation software and other empirical methods to estimate tank flashing losses, working losses, and breathing losses are available including, E&P TANK Version 2.0, Vasquez-Beggs correlation, and Tanks 4.0. In general, simulation models accepted by the Department use Peng-Robinson or S-R-K methods based on widely acknowledged principals of behavior for hydrocarbon vapors and liquids. The empirical Vasquez-Beggs correlation method can provide a rough estimate of tank vapors for certain conditions and crude oil type; however, this method appears to be more appropriate for heavier crudes when the analysis of the extended hydrocarbons may be difficult. If the facility emissions are close to any regulatory or emission control requirements, a more precise method should be used to more accurately estimate tank emissions.

The E&P TANK Model has been the most common model utilized by applicants to register oil and gas production facilities in Montana. The E&P TANK Model has been previously identified as a preferred method for estimating emissions by the Environmental Protection Agency (EPA) and has been confirmed through comparisons with other models and actual field data. While a variety of approaches and modes of operation are available to the software user, the RVP Distillation Column Method with low-pressure oil data is the preferred option and provides the most accurate operation of the model according to the E&P TANK Model Users Manual.

Site Data

In order to obtain accurate emission estimates from the use of any simulation model, site-specific and process-specific information are recommended for inputs. The use of default values offered by the software should be reviewed and explained by the applicant. Default values or non site-specific data may not be acceptable when evaluating/reviewing facility emission control requirements, emission inventories, or deregistrations.

For the E&P TANK Model using the RVP Distillation Column Method with low-pressure oil data, a site-specific extended hydrocarbon analysis is required for the model inputs of the pressurized oil at the operating conditions of the separator. This oil sample should be collected at the outlet of the separator and upstream of the storage tanks. Other actual facility specific operating parameters needed for the model include the sales oil production rate; separator pressure and temperature; Reid Vapor Pressure (RVP) of the sales oil; and the API gravity of the sales oil.

Any other alternative methods for determining emissions will be reviewed by the Department on a case-by-case basis. Please contact the Air Quality Registration Section if you have any questions or need additional information.

(Note: When deregistering an oil and gas production facility, the facility's emissions (e.g., crude oil storage tanks) must be based on the well's maximum daily production rate. This daily production rate is the maximum capacity of the facility. The facility emissions must remain below 25 tons per year of any regulated air pollutant to remain deregistered.)